

Amendment to the Claims:

This listing of claims will replace all prior version, and listings, of claims it the application:

Listing of Claims:

Claim 1 (canceled).

Claim 2 (previously presented): A micro-electro-mechanical system (MEMS) mirror device, comprising:

a mirror having a first surface and a second surface, wherein the first surface comprises a plurality of trenches and the second surface comprises a reflective surface;

a beam connected to the mirror;

a plurality of rotational comb teeth connected to the beam; and

a first spring connecting the beam to a first bonding pad.

Claim 3 (previously presented): The device of claim 2, wherein the mirror comprises an I-beam like cross-section with a top flange and a bottom flange joined by a web, the top flange forming the first surface and the bottom flange forming the second surface.

Claim 4 (previously presented): The device of claim 2, wherein the rotational comb teeth each comprises a tapered shape.

Claim 5 (previously presented): The device of claim 2, further comprising a second spring connecting the beam to the first bonding pad.

Claim 6 (previously presented): The device of claim 2, further comprising a second spring connecting the beam to a second bonding pad.

Claim 7 (original): The device of claim 6, wherein the second bonding pad is defined within the beam.

Claim 8 (currently amended): The device of claim [[6]] 7, further comprising a third spring connecting the beam to the second bonding pad.

Claim 9 (previously presented): The device of claim 2, further comprising a first plurality of stationary comb teeth, wherein the first plurality of stationary comb teeth and the plurality of rotational comb teeth are interdigitated in-plane.

Claim 10 (currently amended): The device of claim 9, wherein the ~~first~~ plurality of rotational comb teeth is coupled to a first steady or oscillating voltage and the first plurality of stationary comb teeth is coupled to a second steady or oscillating voltage.

Claim 11 (original): The device of claim 10, further comprising a second plurality of stationary comb teeth, wherein the second plurality of stationary comb teeth and the plurality of rotational comb teeth are interdigitated out-of-plane.

Claim 12 (original): The device of claim 11, wherein the second plurality of stationary comb teeth is coupled to a third steady or oscillating voltage.

Claim 13 (original): The device of claim 11, wherein the plurality of rotational comb teeth and the second plurality of stationary rotational comb teeth are coupled to sense a capacitance that indicates a rotational angle of the mirror.

Claim 14 (previously presented): The device of claim 2, wherein the beam further comprises a plurality of holes.

Claim 15 (previously presented): The device of claim 2, further comprising mirror alignment marks for aligning another device to the mirror.

Claim 16 (previously presented): The device of claim 2, wherein a gap surrounding the mirror has a width greater than gaps around other components on the same layer as the mirror.

Claim 17 (previously presented): The device of claim 2, wherein the trenches are located along an outer perimeter of the mirror.

Claim 18 (currently amended): The device of claim 2, wherein the trenches ~~comprises~~ comprise etched trenches and laser trimmed trenches.

Claim 19 (original): A micro-electro-mechanical system (MEMS) mirror device, comprising:

a bottom layer, comprising:

a mirror opening;

a first anchoring pad;

a top layer, comprising:

a mirror located above the mirror opening, the mirror having a top surface comprising a plurality of trenches and a bottom surface comprising a reflective surface;

a beam connected to the mirror;

a first spring connecting the beam to a first bonding pad, the first bonding pad being bonded atop but electrically insulated from the first anchoring pad;

a plurality of rotational comb teeth connected to the beam;

a first plurality of stationary comb teeth connected to a second bonding pad, the second bonding pad being bonded atop but electrically insulated from the first anchoring pad;

wherein the first plurality of stationary comb teeth and the plurality of rotational comb teeth are interdigitated in-plane.

Claim 20 (original): The device of claim 19, wherein the mirror has the trenches along an outer perimeter.

Claim 21 (currently amended): The device of claim 20, wherein the trenches ~~comprises~~ comprise etched trenches and laser trimmed trenches.

Claim 22 (original): The device of claim 19, wherein:

the bottom layer further comprises a second anchoring pad;

the top layer further comprises a second spring connecting the beam to a third bonding pad, the third bonding pad being bonded atop but electrically insulated from the second anchoring pad.

Claim 23 (original): The device of claim 22, wherein:

the top layer further comprises a third spring connecting the beam to the third bonding pad.

Claim 24 (original): The device of claim 23, wherein the third bonding pad is located within the beam.

Claim 25 (original): The device of claim 19, wherein the plurality of rotational comb teeth and the first plurality of stationary comb teeth each comprises a tapered shape.

Claim 26 (original): The device of claim 19, wherein the plurality of rotational comb teeth is coupled to a first steady or oscillating voltage and the first plurality of stationary comb teeth is coupled to a second steady or oscillating voltage.

Claim 27 (original): The device of claim 19, wherein the bottom layer further comprises a second plurality of stationary comb teeth, wherein the second plurality of stationary comb teeth and the plurality of rotational comb teeth are interdigitated out-of-plane.

Claim 28 (original): The device of claim 27, wherein the second plurality of stationary comb teeth is coupled to a third steady or oscillating voltage.

Claim 29 (currently amended): The device of claim 27, wherein the plurality of rational comb teeth and the second plurality of rotational comb teeth are coupled to sense a capacitance that indicates a rotational angle of the mirror.

Claim 30 (currently amended): The device of claim 27, wherein a first gap adjacent to the second plurality of stationary comb teeth has $[[a]]$ greater width and depth than a second gap between adjacent teeth in the second plurality of stationary comb teeth, the first gap accommodating a rotation of the rotational comb teeth.

Claim 31 (original): The device of claim 19, wherein the beam further comprises a plurality of holes.

Claim 32 (original): The device of claim 19, wherein the bottom layer further comprises mirror alignment marks for aligning another device to the mirror.

Claim 33 (original): The device of claim 19, wherein:

the bottom layer further comprises a first separation trench;

the top layer further comprises a second separation trench proximate to the first separation trench, wherein the device is singulated along the first and the second separation trenches.

Claims 34 to 42 (canceled).